

REMARKS

As an initial proposition, the Examiner is requested to note that claims 1-6 were canceled by the Preliminary Amendment dated June 10, 2002 and that claims 7-12 are the only pending claims.

The present invention is a polarization discriminator or filter. Volman is a frequency discriminator.

Volman teaches a frequency discriminator arranged to direct all energy in a first (higher) frequency band to one port (14) , and all energy of a second (lower) frequency band to another port (16). The aspect of different frequency bands is explicitly recited at col. 1, lines 18-23, and numerical values of 4 and 6 GHz are explicitly recited at col. 5, lines 18-25.

While the claims of Volman refer to energy of “at least one of two orthogonally-spaced linear polarizations”, the embodiments have no provision for discriminating between orthogonal polarizations of the same frequency.

It is clear from the description that all the energy (and not just energy of one polarization) of the higher frequency is coupled to the through port 14. This is explicitly stated in the description and is absolutely necessary so that circular and elliptically polarized radiation can be handled at the through port. See, for example, col. 6, lines 13-15, and lines 21-26. Item 14 is the through port (i.e., downstream of the point at which energy of the lower frequency has been picked off via the side port 16) and it is clear that virtually all the energy of the relevant (higher) frequency band is conveyed to the through port and that no polarization discrimination takes place.

Conversely, the energy of the lower frequency is directed into the lateral ports 16 by septums 32, and extensions 36 of the ridge of ridged waveguides 16 into the bore of the square

waveguide 24, Fig. 2a. The operation of the lower frequency ports when acting as a splitter is not explicitly described, but operation when acting as a combiner is. While it is stated that the waveguides 16 *per se* are each only capable of supporting a single mode of polarization, it is explicitly stated that an output signal in port 12 can be produced of any desired polarization by appropriately exciting one or both side ports with signals of the appropriate phase. Thus, both ports excited in-phase produce linear polarization of one sense, exciting in opposite phase produce the opposite sense of polarization, and energizing only one of the two ports produces circular polarization. See col. 9, lines 40 et seq. This behavior is not consistent with the behavior of a polarization splitter as understood in the art.

The examiner asserts that Volman teaches the provision of coaxial conductors. The opposite is the case. Col. 5, lines 4- 8 explicitly excludes coaxial conductors from the invention, as follows:

“In this context, the term ‘waveguide’ includes hollow structures including electrically conductive walls, for propagation of electromagnetic waves, and the term does not include other kinds of waveguides such as coaxial cable, stripline, and the like.”

The only reasonable interpretation of this is that the invention does not use coaxial conductors as its input or output ports *per se*.

The only disclosure of coaxial conductors is in Figs. 6a-6d, where an array of the center conductors of coaxial conductors is used to pick off the horizontal and vertical components of electromagnetic energy in the through port. However, the only teaching is that the ports themselves are hollow waveguides.

Allowance of claim 7 and its dependent claims 8-12 is respectfully requested.

As for the indefiniteness rejection of claim 11, the step is depicted in Fig. 3 by reference numeral 18, and the ridges are identified by reference numerals 14, 15.

Petition is hereby made for a three-month extension of the period to respond to the outstanding Official Action to April 8, 2004. A check in the amount of \$950.00, as the Petition fee, is enclosed herewith. If there are any additional charges, or any overpayment, in connection with the filing of this Response, the Commissioner is hereby authorized to charge any such deficiency, or credit any such overpayment, to Deposit Account No. 11-1145.

Wherefore, a favorable action is earnestly solicited.

Respectfully submitted,

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